

**REMARKS**

Applicants respectfully request reconsideration and further examination of the patent application under 37 C.F.R. § 1.111.

**Rejections based on new matter and under 35 USC 112, first paragraph:**

As best understood, the Action argues that the subject matter of U.S. Patent No. 4,641,317 to Fullerton (hereinafter Fullerton `317), which is incorporated by reference into the instant application, does not provide enabling support for the claimed invention under 35 USC 112, first paragraph and characterizes the amendments made to the specification and drawings for overcoming the 112, first paragraph, rejection as constituting new matter. More specifically, the Action considers the amendment of Fig. 10 and the insertion of blocks 1027 and 1029 and the associated changes to the specification to constitute new matter.

The specification and Figure 10 of the instant application were amended based on support provided by Figure 1 of Fullerton `317 and the associated description regarding the switching and filtering functions performed at the disclosed output stage, which corresponds to the output stage 1028 shown in Figure 10 of the instant application. Without setting forth any reason, the Action summarily states that the transmitter in Figure 1 of Fullerton `317 comprises totally different block elements than the transmitter(s) shown in the present invention. Applicant respectfully disagree.

Figure 1 of Fullerton `317 shows a transmitter 10 comprising an output stage 18 having a semiconductor switch 52 and a filter 82. The amended Figure 10 shows the output stage 1028 having a switch 1027 and a filter 1029. The semiconductor switch 52 of Fullerton `317 correspond to the switch 1027 and filter 82 of Fullerton `317

correspond corresponds to filter 1029 of the amended Figure 10. There is no evidence on the record as to why the Action considers the corresponding block elements in Figure 1 of Fullerton '317 and the amended Figure 10 of the present invention to be different.

Next, the Action argues that the pulse position modulator 22 of Fullerton '317 is different from the code time modulator and/or subcarrier time modulator of the present invention. The Action concludes that replacing the switch and filter of Fullerton '317 into the present invention renders the invention inoperative. Applicant respectfully disagree.

Fullerton '317 in Figures 1 and 4 and in column 2, line 44 - Column 3, line 21, discloses the pulse position modulator 22 generating a train of pulse position modulated pulses (waveform F whose trailing edge varies in its time position as a function of the signal modulation) to feed output stage 18 from an input code signal (waveform D from an audio signal from microphone 34) and an input time base signal (waveform A from a divider 14). Similarly, the code time modulator and the subcarrier time modulator of the present invention generate a train of pulse position modulated pulses (modulated and coded timing signal 1026) to feed output stage 1028 from an input code signal (information signal 1020 from information source 1018) and an input time base signal (periodic timing signal 1004). Please see specification, 0117-0126. Therefore, the pulse position modulator 22 of Fullerton '317 and the code time modulator and/or the subcarrier time modulator of the present invention are the same modulators, not different modulators as asserted in the Action. One skilled in the art would recognize the audio signal from microphone 34 of Fullerton '317 can be replaced with the information signal 1020 from information source 1018 of the present invention. As a result, replacing the

switch and filter of Fullerton `317 into the present invention would not render the invention inoperative.

Accordingly, the drawings submitted on March 10, 2008 do not contain new matter and the claims are fully supported by the specification of the instant application. Withdrawal of this rejection is respectfully requested.

**Claim Objections:**

Claims 27-30 are objected to because of cited informalities. Claim 27 recites a transmitter, "wherein said output stage generates said ultra wideband signal based upon a trigger signal." The Action suggests replacing "based upon" with "is based upon." It is respectfully submitted that the suggested change would render claim 27 grammatically incorrect. Withdrawal of the objection is respectfully requested. Objection to claims 28-29, which depend on claim 27, should be withdrawn for the same reason..

Claim 30 is amend as shown above to overcome the cited objection, with expression of gratitude to the Examiner for pointing out the inadvertent error.

**Rejections under 35 U.S.C. § 112:**

Claims 28-29 and 37-38 stand rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement. As best understood, the Action alleges that the instant application is a continuation of applications of 09/037,704 and 08/949,144 and the subject matter recited in claims 28-29 and 37-38 were not recited in the original claims of the priority applications.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

"The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as

to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention."

There is no requirement under this statute for finding support for the claimed invention in the original claims of a priority application. For the reasons set forth above, the instant application fully supports the claimed invention by incorporating by reference the entire disclosure of Fullerton '317.

The Action argues that the specification fails to describe that the trigger signal is to apply to at least one switch and the at least one switch comprises at least one transistor. For the reasons set forth above, the specification fully supports including the switch 1027 in the output stage 1028 of the amended Figure 10. Figure 1 of Fullerton '317, incorporated by reference, shows, a trigger signal (output from mono 46) applied to semiconductor switch 52, which comprises at least one NPN transistor. See, for example, Fullerton '317, Column 3, lines 23-25. As a result, the specification describes that the trigger signal is to apply to at least one switch, namely the semiconductor switch 52, and the at least one switch comprises at least one transistor, namely the NPN transistor. For the foregoing reasoning, claims 28-29 and 37-38 are enabled and withdrawal of the rejections is respectfully requested.

Claims 23, 31, and 40 stand rejected under 35 U.S.C. § 112, second paragraph as lacking sufficient antecedent. This rejection is traversed because there is only one time domain, as commonly known in the art and the use of "the time domain" is sufficiently clear to refer to the only one time domain, as commonly known in the art. Withdrawal of

this rejection is respectfully requested.

**Rejections Under 35 U.S.C. § 103(a):**

Claims 23-24, 27-33, 36-40, and 42 stand rejected under 35 U.S.C. § 103(a) as being obvious over Fullerton `317 in view of U.S. Patent No. 5,277,096 to Buchan (hereinafter Buchan). Applicants respectfully traverse the rejection.

Claims 23 requires a filter that spectrally modifies an ultra wideband signal to create one or more zero crossings in the time domain. The Action correctly concedes that Fullerton `317 fails to teach a filter that spectrally modifies the wide spectrum to create one or more zero crossings in the time domain. The Action, however, alleges that Buchan meets this requirement because Figure 5 of Buchan shows a time domain filter 225 and Figure 6 of Buchan shows a waveform generated by the time domain filter 225. Citing column 10, lines 15-20 and lines 39-47, the Action states that Buchan teaches "a well-known time-domain filter that detects the timing of input crosses zero, delays a predetermined amount in the time domain, and then examines the amplitude quantification signal as to whether or not is has exceeded one or two threshold levels that are on either side of a reference by equal amounts." The Action concludes that it would have been obvious to incorporate the time domain filter of Buchan into Fullerton's transmitter. As best understood, the Action argues that the time domain filter of Buchan is capable of modifying ultra wide band signal (UWB) to create one or more zero crossing in the time domain in Fullerton's transmitter.

Buchan discloses a write equalization circuit for a computer tape drive. There is no indication, teaching or suggestion anywhere in this reference for using the disclosed tape drive write equalization circuit in any transmitter whatsoever, let alone a UWB

transmitter. There is also no implicit or explicit evidence on record as to why one of ordinary skill in the art of radio frequency transmitters would look into the tape drive technology for a filter that spectrally modifies RF signal to create one or more zero crossings in the time domain. Moreover, the Action incorrectly states that the filter 225 of Buchan generates the wave form shown in Figure 6. Just a cursory review of the wave form labeling in Figure 6 reveals that the shown waveforms could not have been generated by the filter 225. This is because the shown zero crossing waveforms are labeled as input waveforms to the filter 225 of Figure 5.

Further, the Office Action states that Buchan teaches a well-known time-domain filter that detects the timing of input crosses zero..." The Action, however, has not explained how such zero crossing detection relates to spectrally modifying RF signals to create one or more zero crossings in the time domain, as required by the claimed invention. Figure 6 of Buchan shows inputs to the time domain filter of Figure 5. See, Buchan, Column 3, lines 15-18.. It is well known that a filter can not generated zero crossings at its input. There is no disclosure in Buchanan regarding filter 225 creating any type of zero crossings. Detecting zero crossings is not creating zero crossing. Zero crossings must be created before they can be detected. Consequently, by teaching a time domain filter that detects the timing of the zero crossings of an input signal, Buchan fails to teach or fairly suggest a filter that spectrally modifies a ultra wideband signal to create one or more zero-crossings in the time domain, as required in claims 23.

Finally, the Action argues it would have been obvious to recognize that a time domain filter, such Buchan's filter, is capable of modifying UWB signals at the input of filter 82 of Fullerton to create one or more zero crossings. As stated above, there is no

evidence in the record that one of ordinary skill in the art in the RF/UWB transmitters would seek a solution in the non-analogous tape drive art. Even assuming arguendo that RF/UWB transmitters and tape drive art are analogous, Buchan's filter still does not spectrally modify an UWB signal to create zero crossings. This filter merely detects zero crossings. Therefore, replacing the filter 82 of Fullerton with filter 225 of Buchan would result in a transmitter that outputs a signal that corresponds to the detected zero crossings of Fullerton's modulated UWB signal. Such signal would be useless for its intended purpose, i.e., communicating the modulated information, since the signal does not correspond to any such information. Therefore, Buchan does not teach or suggest a filter that spectrally modifies a ultra wideband signal to create one or more zero crossings, as required in claim 23. Based on the foregoing reasoning, neither Fullerton '317 nor Buchan, alone or in combination, teach or suggest claim 23. Withdrawal of the rejection is respectfully requested.

Claims 31 and 40 recites similar subject matter and are allowable, at least for similar reasons. Withdrawal of the rejections is respectfully requested.

Claims 24 and 27-30, 32-33 and 36-39, and 42 depend on claims 23, 31, and 40, respectively, and are allowable, at least, for depending from an allowable claim.

Applicants respectfully request the rejections be withdrawn.

Claims 25, 34, and 41 stand rejected under 35 U.S.C. § 103(a) as being obvious over Fullerton '317 in view of Buchan and further in view of U.S. Patent No. 4,583,232 to Howell. This rejection is respectfully traversed Because Claim 25, 34, and 41 depend on claims 23, 31, and 40 respectively, and are allowable, at least, for depending on an allowable claim. Withdrawal of this rejection is respectfully requested.

**Conclusion:**

Applicants respectfully submit that in view of the foregoing, all of the stated grounds of objection and rejection have been properly accommodated, traversed, or rendered moot. Therefore, the Applicants respectfully request that the Examiner reconsider the presently outstanding rejections and that they be withdrawn.

If the Examiner believes, for any reasons, that further communication will expedite prosecution of this application the Examiner is invited to telephone the undersigned at the number provided.

Applicant believes there are no additional fees associated with this reply other than those indicated. However, if this is incorrect, the Commissioner is authorized to charge any fees that may be required for this paper to Deposit Account No. 22-0261.

Respectfully submitted,

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